

10-3

**Skills Practice****Properties of Logarithms**Do #1-6, 10-18

Use  $\log_2 3 \approx 1.5850$  and  $\log_2 5 \approx 2.3219$  to approximate the value of each expression.

1.  $\log_2 25$

2.  $\log_2 27$

3.  $\log_2 \frac{3}{5}$

4.  $\log_2 \frac{5}{3}$

5.  $\log_2 15$

6.  $\log_2 45$

7.  $\log_2 75$

8.  $\log_2 0.6$

9.  $\log_2 \frac{1}{3}$

10.  $\log_2 \frac{9}{5}$

Solve each equation. Check your solutions.

11.  $\log_{10} 27 = 3 \log_{10} x$

12.  $3 \log_7 4 = 2 \log_7 b$

13.  $\log_4 5 + \log_4 x = \log_4 60$

14.  $\log_6 2c + \log_6 8 = \log_6 80$

15.  $\log_5 y - \log_5 8 = \log_5 1$

16.  $\log_2 q - \log_2 3 = \log_2 7$

17.  $\log_9 4 + 2 \log_9 5 = \log_9 w$

18.  $3 \log_8 2 - \log_8 4 = \log_8 b$

19.  $\log_{10} x + \log_{10} (3x - 5) = \log_{10} 2$

20.  $\log_4 x + \log_4 (2x - 3) = \log_4 2$

21.  $\log_3 d + \log_3 3 = 3$

22.  $\log_{10} y - \log_{10} (2 - y) = 0$

23.  $\log_2 s + 2 \log_2 5 = 0$

24.  $\log_2 (x + 4) - \log_2 (x - 3) = 3$

25.  $\log_4 (n + 1) - \log_4 (n - 2) = 1$

26.  $\log_5 10 + \log_5 12 = 3 \log_5 2 + \log_5 a$